



MaineDOT

U.S. Environmental Protection Agency

Clean Ports Program: Climate and Air Quality Planning Competition Application

2024

Maine Department of Transportation



Section 1 – Project Summary and Approach

a. Overall Project

The Maine Port Electrification Clean Energy Planning Project is critical to the State of Maine’s commitment to transitioning to clean energy at its ports to reduce the negative climate impacts vessels in port impose on local communities. This planning project is fully focused on pollution reduction at ports that see both cargo and cruise ship dockings in Maine. *The Maine Port Electrification Clean Energy Planning Project* is critical to the State of Maine’s commitment to transitioning to clean energy at its ports to reduce the negative climate impacts vessels in port impose on local communities. This planning project is fully focused on pollution reduction at ports that see both cargo and cruise ship dockings in Maine. Maine ports see a mix of cruise ships and cargo vessels come into port every day which positions these Maine ports to serve as a catalyst for transformational change across local freight operations. MaineDOT has partnered with Maine Port Authority (MPA), Maine Department of Economic and Community Development (DECD), and CruiseMaine to explore the feasibility port electrification and shore power deployment at ports within the state; including cruise ports that regularly hosts small passenger vessels and has expressed interest in shore power connection. While the primary focus will be on Portland, Searsport, and Eastport, the study portion in Rockland will be valuable information for the state, because it is a popular destination for small coastal cruise ships and will therefore, provide a case study for similar shore power projects throughout the state.

To complete this planning project, **MaineDOT is requesting \$1,000,000 from the EPA Clean Ports Program: Climate and Air Quality Planning Competition.**

CruiseMaine commissioned a study on the energy used by cruise ships at the Port of Portland and the feasibility of implementing shore power at the port’s cruise facilities. In 2023, 118 ships visited Portland with an average docking time of 8 hours which equates to nearly 1,000 hours of running onboard generators to power the lights, HVAC systems, elevators, and galleys on the ships. This energy consumption equates to more than 4,000 tons of GHG emissions by these ships while docked. Shore power has the ability to reduce these polluting emissions by up to 98 percent. Utilizing shore power in ports can eliminate emissions entirely while a vessel is docked, significantly reducing its carbon footprint. There is a dearth of ports that offer shore power for cruise ships. Currently, only 29 ports worldwide offer at least one cruise berth with shore power, and another 36 are expected to have similar facilities by 2026. For context, Royal Caribbean reported visiting over 1,000 destinations globally in 2023. To combat climate change and lower emissions worldwide, governmental entities have begun to impose penalties on cruise ships that emit over the allotted emissions while in port. However, without adequate shore power, the ships have little option but to accept the penalty. Therefore, unless a substantial number of both homeports and ports of call adopt shore power, ships will continue to face penalties for emissions while docked. (BA Maritime: BA Perspectives: CII Could Impact Ports & Itineraries, May 15, 2024). The use of shore power allows the ship to power down its onboard generators used for hoteling, reducing both air pollutant and CO₂ emissions. Shore power can eliminate 100 percent of emissions produced while a vessel is docked.

This reduction in emissions is also evident in the cargo vessel industry which would greatly benefit as well from being able to use shore power as an alternative to relying on diesel while in port, as well as utilizing zero emissions (ZE) vehicles for all cargo operations shoreside. The reduction of port emissions by vessels and vehicles will directly, positively impact communities that surround ports, especially disadvantaged

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communities. Not only will the use of shore power and ZE vehicles have a direct impact on the communities surrounding the ports but will have a broader impact on air quality adjacent to the ports.

The State of Maine is seeking this planning grant because it intends to apply for future zero-emissions grant funding opportunities. Completing this planning study will allow the state to obtain cost estimates and the necessary planning to successfully apply for future grants or bond funding.

Emissions Inventory

It will be critical to complete an emissions inventory for each of the shore power designs for each of the ports. This project will develop a ports-wide inventory of emissions and factor in the total contributions to Maine carbon emissions. This analysis and inventory will determine:

1. Develop a port-wide inventory at each port location (Portland, Eastport, Searsport, and Rockland) including, but not limited to:
 - a. A baseline emissions inventory following the EPA Port Emissions Inventory Guidance.
 - b. Inventory of port equipment to include emissions relevant characteristics such as age, fuel type, engine tier, annual usage hours or mileage depending on the asset, and projected use of life.
 - c. Projected future year emissions inventory following EPA Port Emissions Inventory Guidance if Maine ports do not electrify or develop shore power, essentially a no-build scenario.
 - d. The impacts of GHG emissions from commercial vessels visiting Maine and its port facilities.
2. Collect and process data to inform emissions inventory including but not limited to:
 - a. Stakeholder interviews and surveys to include terminal operators, vessel owners and operators.
 - b. Vessel registry and traffic information
 - c. Truck count and traffic study including origin and destination surveys
 - d. Fleet and duty cycle analysis
 - e. Emissions monitoring devices

Emissions Reduction Strategy Analysis and Goal Setting

- a. Update the most recent comprehensive reports outlining port emissions reduction goals and strategies informed by scenario analysis and stakeholder engagement.
- b. Assess cost and feasibility of deploying shore power and electrification in all ports being studied. This plan will assess the feasibility of these emissions reducing initiatives. This will include what grid upgrades will be needed as well as what equipment will be needed at passenger and cargo terminals in Portland, Searsport, and Eastport. Cruise ship visits have been increasing in ports like Eastport.
- c. Conduct scenario analysis; estimate reductions of emissions based on the deployment of shore power.

Stakeholder Collaboration and Communication

There will be extensive community engagement as MaineDOT, MPA, and CruiseMaine investigate the feasibility and benefits of installing shore power at its three (3) deepwater ports and one of the many smaller ports in the State of Maine to understand the potential for electrification and shore power

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throughout the State of Maine’s marine transportation system. This planning project will address community and stakeholder collaboration and communication to ensure continued meaningful engagement throughout the design and construction process as well as post-construction.

- a. Create and support a formal structure or process to get input from near-port communities and other stakeholders on climate and air quality planning activities. This planning project will also evaluate the impacts of shore power deployment on the surrounding communities with a specific focus on the EPA determined disadvantaged communities. It is critical to the project partners that meaningful community engagement is maintained throughout the project.
- b. Provide staff training and other capacity building resources to help stakeholders engage in the port-decision making process.
- c. Conduct community needs and environmental justice assessments
- d. Develop an air monitoring plan in consultation with community groups to help assess the impacts of emissions reduction strategies in specific communities.
- e. Conduct local workforce planning analysis to include engagement with workers, labor unions, and other workforce stakeholders to collaboratively develop solutions for supporting high-quality jobs and workforce pathways. This planning project will evaluate what if any changes or impacts to the existing port workforce will happen as a result of deploying shore power. This planning will inform the state on how it will prepare its workforce in advance of shore power deployment.

Other Planning Activities

Build America/Buy America

To electrify and deploy shore power, Maine will have to purchase electrical port equipment. As this is a planning phase of this project, Build America/Buy America (BABA) will be considered, where appropriate, to remain compliant. It will be critical to understand what is or is not compliant when purchasing equipment, in later phases, to deploy shore power and ZE vehicles. This phase will aid in steps needed to remain compliant in future phases.

Grid Capacity

In addition to the emissions inventory and the community engagement, this project seeks to explore and determine grid capacity in the State of Maine and what upgrades might be necessary to handle the increased pressure on the grid with the introduction of shore power and ZE vehicles for port operations. MaineDOT understands that there will need to be significant upgrades to the Maine electrical grid for the Ports of Portland, Eastport, and Searsport to successfully deploy shore power at these ports. Likewise, these upgrades will not be inexpensive. This planning project will evaluate and analyze the requirements to upgrade the grid, the feasibility, and the cost of doing so. To date, while CruiseMaine has completed this analysis for the Port of Portland, the State of Maine has not embarked on such an analysis for the cargo component of the port or for the other ports.

This project will also determine what grid upgrades will be necessary for port electrification. This aspect of the planning project will involve input from state agencies and private utility companies. There will be

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a full analysis done on the feasibility of grid upgrades for port electrification which will include the following:

1. Cost of upgrades to the electrical grid which includes the cost to private utility customers and to the Maine taxpayers.
2. Source of energy to upgrade the grid. Determining this is critical as the state does not want to embark on electrifying port facilities while increasing emissions because the electrification requires a more robust electrical grid, and the power source is fossil fuel based. Without a study completed ahead of time it is very possible that the outcome of implementing shore power is more harmful to the environment through the proliferation of GHG emissions due to an expanded electrical grid.
3. Timeline to upgrade the electrical grid.
4. Funding sources that will help implement the grid expansion.
5. Social impact of upgrading the grid. It will be critical to understand the impact on disadvantaged communities and labor organizations.

Timelines

The Maine Port Electrification Clean Energy Planning Project will create a high-level timeframe for implementation of port electrification. It will be critical to the State of Maine that the planned strategy for completing port electrification projects ensures the best value for Maine citizens and the environment. The study will provide guidance on which electrification projects should be implemented immediately and which should be implemented in the future. This determination will be based on various factors determined during the planning phase including timing and cost.

Technical Feasibility to Electrify Each of the Ports

The Maine Port Electrification Clean Energy Planning Project will conduct a technical feasibility analysis to determine what will be needed to electrify each port. This technical feasibility analysis will include:

1. Identify gaps in the current port infrastructure to allow for the deployment of electrical infrastructure at Maine's deep-water ports for ship to shore power for marine cargo and passenger vessels.
2. Identify the requirements to get enough power from new substations to the ports to provide shore power to cargo and passenger vessels.
3. Conduct a transmission and distribution study – similar to the one already completed for plugging in cruise vessels in Portland – for cruise and cargo operations in Searsport and Eastport, as well as for cargo operations in Portland. Include calculations on percentage of power needed for electrifying the ports compared to the overall current and projected power demand in Portland, Searsport, and Eastport.
4. The study focusing on the Port of Portland will assume that up to three (3) cruise vessels will be connected to receive shore power from the electrical grid in Portland. Simultaneous use of all three docking stations in Portland is a total demand of up to 25MW.
5. For the Port of Portland portion of the planning project, identify gaps for connecting a vessel to shore power at the International Marine Terminal (IMT). The IMT portion will also include

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- requirements to power an electric fleet of port equipment including hustlers, reach stackers, cranes, and other equipment.
6. For the Port of Eastport portion of the planning project, it will be assumed that two (2) vessels will be connected to receive shore power, one at the Breakwater Terminal, the other at Estes Head.
 7. For the Port of Searsport portion of the planning project, requirements to power an electric fleet of port equipment including conveyors, tractors, cranes, top lifters, and other port equipment required. It will be assumed that one (1) vessel will be connected to shore power at the existing Mack Point dry cargo pier, and one (1) will be connected to power at the proposed Sears Island floating offshore wind port.
 8. Identify options, where feasible, to use a microgrid to meet electrification needs.

Partnerships and Collaboration

MaineDOT has been and will continue to be committed to collaborating with its statutory partners and with other entities that have a significant interest in the advancement of the ports. MaineDOT will be lead on administering the grant and joined by the MPA and CruiseMaine to complete the work. MaineDOT is a state agency, as well as the MPA, and CruiseMaine is a contracted initiative of the Maine Office of Tourism, which is housed within the Maine Department of Economic and Community Development (DECD). An existing Memorandum of Understanding between MaineDOT, MPA, Maine Office of Tourism, and DECD illustrates the partnership between these entities, which has led to seven (7) years of collaboration. The collaborating entities for this planning project are:

Maine Department of Transportation: MaineDOT will oversee and manage the project and contracts to complete the work. Chris will also ensure the administrative requirements of the grant are met and be responsible for drawdowns and consultant invoicing and reporting.

Maine Port Authority: The following is the relevant language of the Maine Statute governing the Maine Port Authority's statutory partnership, "[t]he Maine Port Authority, as established by [Title 5, section 12004-F, subsection 8](#), is a body both corporate and politic in the State established for the general purpose of acquiring, financing, constructing and operating any kind of marine port terminal facility and associated multimodal infrastructure facilities that directly support marine port operations within the State in coordination with the Department of Transportation with all the rights, privileges and powers necessary. Oil pipelines and other oil off-loading facilities are limited to sites in Portland and Searsport harbors. [PL 2021, c. 555, §1 (AMD).] It is declared that the purposes of this chapter are public and that the authority is performing a governmental function in carrying out this chapter. [PL 1997, c. 395, Pt. J, §1 (NEW).]"¹ MPA will be responsible for the technical and engineering scope of the project. Preliminary designs for shore power and EV infrastructure will be the primary responsibilities for the MPA.

CruiseMaine: As designated cruise-focused entity for DECD, CruiseMaine will work with MaineDOT and the MPA to complete the project and will be a key player in the project team. CruiseMaine will be responsible for most of the community engagement work and the lead and expert on the parts of the project that involve cruise ship shore power infrastructure.

¹ <https://legislature.maine.gov/statutes/23/title23sec4420.html>

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MaineDOT intends to issue a Request for Proposal (RFP) to select a consultant for the planning project as soon as funding is made available. This RFP process will follow the Maine procurement and contracting rules.

Coordination with Complementary Initiatives

There has been a great deal of work done prior to the application to engage stakeholders and plan for a zero emissions future in Maine’s transportation sector. There has been particular emphasis placed on developing shore power at Maine ports to reduce the pollution emitted by vessels that are in port. Several reports that have been published include,

1. *Shore Power, Sub-Transmissions Interconnection Feasibility Study, Final Report 2024*, Central Maine Power, https://www.cruisemaine.org/files/ugd/6281f2_421b753a10814b3fb163801ccde342d1.pdf
2. *One Climate Future, Charting a Course for Portland and South Portland, Climate Action and Adaptation Plan, 2020*, Portland and South Portland, https://www.oneclimatefuture.org/wp-content/uploads/2021/02/OneClimateFuture_FinalJan2021_Downsized.pdf
3. *Maine Won’t Wait*, contains strategies to meet Maine’s climate goals and priorities including both greenhouse reduction measures and climate adaptation and resilience actions, https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf

Section 2 – Environmental Results – Outcomes, Outputs and Performance Measures

a. Expected Project Outputs and Outcomes

Anticipated Outputs and Outcomes		
Activities	Outputs	Outcomes
Develop port-wide inventory of emissions	Completed or updated emissions inventory of port	Increased understanding of current port emissions
Assess cost of feasibility of diesel emission reduction strategies	Plan for reducing future port emissions	Increased capacity to make strategic long-term investments to reduce emissions at the ports
Assess the capacity of Maine electrical grid to handle port electrification	Suggestions for upgrading the electrical grid	Maine plan to upgrade electrical grid to handle port electrification
Launch a formal process to get input from communities and other stakeholders on climate and air quality planning activities	Number of local residents, events and tools supporting engagement with local residents to ensure meaningful participation	Increased and sustained stakeholder participation; increased public participation and support for port activities
Engage port workers on climate and air quality planning activities	Plan to prepare the current workforce for changing port conditions; new workforce development initiatives	Better prepared workforce for future port activities

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Prepare and publish documents summarizing the results of the planning process	Development of publicly available document summarizing the results of the planning activities	Public engagement, outreach, and knowledge of port emissions and planning study.
Prepare and submit progress reports and a final report to EPA	Progress reports and a final report	Increased public awareness and assurance of project progression
Assess costs of port electrification and shore power at three (3) deep water ports and smaller ports in Maine	Prepare cost estimate for deploying shore power and electrification at the three (3) deep water ports and smaller ports in Maine	Financial plan to electrify and deploy shore power at the ports

b. Performance Measures and Plan

MaineDOT will track, measure, and report progress towards achieving each of the outputs and outcomes anticipated above. This is a planning project and the timeline for completion is two years, the short-term results of the planning project will be to issue and award an RFP to complete the work and to gather information necessary to fully understand the process Maine will go through to deploy shore power and a fleet of zero emissions vehicles. The long-term result will be a fully defined plan to electrify and deploy shore power at the ports that are subject to this grant proposal. This plan will include design, costs, stakeholder engagement, labor requirements and recommendations for necessary electrical grid upgrades. The plan will measure progress through adherence to the timeline and milestones detailed below. MaineDOT has a proven record of being awarded federal funds and using those resources effectively and efficiently to gain the results promised.

The counties impacted by these outputs and outcomes listed above are the following: Cumberland, Knox, Penobscot, Waldo, and Washington counties in the State of Maine.

As noted, MaineDOT has a long history of receiving federal formula and discretionary funds and deploying resources to construct infrastructure projects throughout the state. As part of this, MaineDOT has significant experience overseeing its contractors and vendors in a wide range of activities from planning to construction. This planning project will be no different. MaineDOT will follow its procurement rules and regulations as well as those governing oversight of contractors and vendors to ensure the associated Federal requirements, such as compliance with Title VI/Civil Rights, Buy America, and Americans with Disabilities Act, are met. MaineDOT has an accounting office and process that will track and report project progress on expenditures and any purchases. MaineDOT likewise will track, measure and report accomplishments and proposed milestones and timelines using the same processes it has in the past to account for federal funds involved in infrastructure projects. MaineDOT will be responsible for tracking the progress of the project as well as submitting progress reports as required by EPA.

c. Timelines and Milestones

This planning project will be completed within two (2) years of commencing. For the planning project itself the schedule is as follows:

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In Year 1 a Request for Proposals (RFP) will be issued for consultant services with an expertise in port electrification to assist the state with the Maine Ports Electrification Planning Study. Following consultant selection, the consultant and team will begin work on the scope of the project which will include:

- Gathering data, site visits, engineering reviews
- Conducting initial investigations, interviews, and meetings
- Facilitating stakeholder work, and
- Begin drafting a community engagement plan.

In Year 2 the data collection which was the focus of Year 1 will be complete. The primary focus of Year 2 will be conducting preliminary engineering for all four Maine ports to evaluate the necessary upgrades to the Maine electrical grid as well as any port infrastructure required to accommodate shore power as well as EV infrastructure. Furthermore, during this time a community engagement plan will be underway including holding community meetings and collecting necessary data.

Section 3 – Programmatic Capability and Past Performance

a. Past Performance and Reporting Requirements

1. **2013 TIGER: Richmond-Dresden, Maine Kennebec Bridge Project** – Status: Complete. Assistance Agreement Number: FAIN 23JTDG1267400 Description: This project proposes replacing the existing bridge with a new structure located no more than 125 feet upstream from the existing bridge centerline to minimize potential impacts on private properties in the vicinity. This location also allows the swing span to remain operable during construction.
2. **2014 TIGER: Title – Sarah Mildred Long (SML) Bridge Replacement Project** – Status: Complete. Assistance Agreement Number: FAIN 231671000TTDG30 Description: The SML bridge is in poor condition and is prone to closures for emergency repairs. It has been posted to 20 tons since 2009, has Fracture-Critical Truss Spans, is “structurally deficient” and has reached the end of its effective service life. The rail crossing portion of SML provides the only viable transportation mode for the Portsmouth Naval Shipyard (PNS) to ship spent nuclear fuel from its servicing operations of the U.S. Navy’s fleet of nuclear submarines.
3. **2016 TIGER: Title – Replacement of Beal’s Island Bridge** – Status: Complete. Assistance Agreement Number: FAIN 232262600ATDG Description: The proposed bridge project will replace the existing structurally deficient bridge with a 1,061 foot-long precast, prestressed concrete Northeast Bulb Tee bridge. The new bridge roadway width will be increased to 28 feet curb-to-curb with 3-bar galvanized steel bridge rail. This new roadway, consisting of two 10-foot lanes and 4-foot shoulders, will not only enhance safety for trucks, emergency response vehicles, and school buses, but will create a safer crossing for bicyclists and pedestrians.
4. **2017 TIGER: Title - Penquis Region Rural Bridges Project** – Status: Substantially Complete. Assistance Agreement Number: FAIN 693JJ22040000TG00ME2262701. Description: The Penquis Region Rural Bridges Project (“Project”) will fully replace three challenged highway bridges in a small area in the center of the Penquis Region in rural Piscataquis and Penobscot Counties. Each of these bridges is either structurally deficient, in a fracture critical state or both, and need to be replaced or incur significant maintenance and risk potential closure.

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5. **2018 BUILD: Title – Maine Western gateways Project** – Status: Substantially Complete. Assistance Agreement Number: FAIN 693JJ22040000BDG0ME1728001. Description: The Project entails resurfacing and improving three roadways with numerous potholes and rutting in rural Franklin and Oxford Counties. The Project elements are linked together in a common objective; all three roads are pivotal routes through western Maine. Furthermore, each portion of the Project, five miles in total, requires completion to finish the final segment of longer road reconstruction projects already concluded by MaineDOT.

For each grant, MaineDOT assembles a project team to shepherd the application through the drafting, submittal, agreement and reporting processes. Upon execution of the grant agreement, MaineDOT staff begins compliance with the quarterly grant reporting requirements and the submittal of the final reports as required at final closeout of the project. MaineDOT staff tracks and reports on performance measures listed in the grant agreement identifying the study area, performance targets and measurements, pre-project measurement dates, pre-project report dates and project outcomes report date.

b. Staff Expertise

Matt Burns – Executive Director, Maine Port Authority. Mr. Burns is an experienced marine transportation and port professional who will be overall lead for the project and ensure its delivery. Mr. Burns will be primarily responsible for port infrastructure and technical portions of the study.

Sarah Flink – Executive Director, CruiseMaine. Ms. Flink is the Executive Director of CruiseMaine, the state's initiative to support, educate and promote Maine communities seeking sustainable cruise ship tourism, infrastructure investment, and economic and destination development. Ms. Flink has overseen an overhaul of the mission, branding, and website; helped facilitate a statewide Cruise Visitor Survey; spearheaded marketing and sales efforts to attract more cruise business to Maine; and emphasized community engagement and partnership to expand economic benefit to the state of Maine while also mitigating impacts. She has created educational materials, led stakeholder meetings, and testified as an expert witness in a constitutional challenge to local legislation restricting cruise visitation. Ms. Flink launched the PortShare Promise pilot program in Portland in 2023, in partnership with local stakeholders. That program will expand into Eastport and Rockland. Ms. Flink will oversee the work being done by the consultants and will be primarily responsible for connecting the planning study to previous work completed and community engagement.

Chris Mayo – Director of Ports and Marine Transportation, MaineDOT. Mr. Mayo is an experienced mariner and port infrastructure specialist who manages the state's port and marine grant programs and infrastructure projects occurring on the water. Mr. Mayo will assist Mr. Burns and Ms. Flink deliver the study and responsible for administrative work associated with the grant reporting.

Section 4 – Environmental Justice and Disadvantaged Communities

Disadvantaged Communities

This project will spend 45 percent of the grant award on planning at the Port of Portland located in Cumberland County which meets the Disadvantaged Community definition found in the Clean Ports NOFO.

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Cumberland County also contains a High Ambient Diesel PM concentration. Therefore, according to the NOFO, this project does take place in a disadvantaged community.

Disadvantaged Communities: Areas with Air Toxics Concerns

Furthermore, according to the attached EPA Supplemental Application Cover Sheet Tab 2, Cumberland County contains at least one census tract where modeled ambient diesel PM concentration from the 2019 Air Toxics Screening Assessment is above the 80th percentile for census tracts nationwide.

Community Engagement Prior to Application and During Project

There has been extensive community engagement on behalf of the cruise industry as well as the cargo industry. Community engagement is standard practice at each port subject to this study. During the planning project, MaineDOT and its partners are committed to seeking out and facilitating the involvement of people potentially affected by the project; informing them about the project; giving them an opportunity to participate in the project, contribute and provide feedback; enabling them to influence decisions about future projects that may affect their environment and or health. This is evidenced by the published studies resulting from the previous community and stakeholder engagement.

Community Engagement Prior to Project

Based on the City of Portland's One Climate Future Plan, CruiseMaine worked closely with elected officials and staff from the City of Portland to commission the utility's transmission and distribution study for shoreside electricity for cruise ships in Portland. This collaboration included a presentation to the City Council Sustainability and Transportation Committee; multiple meetings with the City's Sustainability Director regarding the scope of the study; and 3 presentations on the progress of the study, one of which included a shoreside tour of the piers in Portland as well as a demonstration tour of the shore power facilities in Brooklyn, New York.

Additional outreach to educate the public about shore power for cruise ships in Portland has included periodic calls with the Portland Climate Action Team, a Sierra Club-affiliated group whose mission is to take meaningful action to promote clean energy, reduce carbon pollution, and advance the steps of the One Climate Future plan in the city. CruiseMaine will also be hosting its annual stakeholder meeting on June 5, 2024, and will include an update on the shore power transmission study as well as anticipated next steps.

Maine DOT and the other partners on this Clean Ports initiative will build upon this outreach in ongoing phases of the project. CruiseMaine has helped to facilitate several shore power-themed tours including onboard a vessel in docked at the Port of Portland, as well as one in Brooklyn, New York. CruiseMaine has also hosted and co-hosted several meetings with city and state representatives to discuss the needs and technical requirements of deploying shore power. After CruiseMaine created a community feedback hotline in the City of Portland it received feedback from the community, much of it pertaining to concerns about air emissions.

Long-term Community Engagement

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Long-term community engagement is important to MaineDOT and its partners in this project. Part of the planning process will be to create a clear long-term plan for sustained community engagement that is predicated upon the previous extensive community engagement described above.

The planning process will determine the most effective way to ensure community engagement. The plan will recommend the engagement of a community liaison or equity program director who will be responsible for assisting port staff in ensuring the communities surrounding the ports are engaged throughout the process. Likewise, the plan will advise the state on the appropriateness of a community advisory committee. MaineDOT is committed to identifying a clear point of contact for each project who will be accessible to the community in a public forum to accept feedback both positive and negative. The planning project will determine if it will be necessary to have a different point of contact for each port project or if one point of contact will be able to address communities impacted by multiple ports. Finally, the budget arrived at through the planning process will detail the funding necessary to support and train community engagement staff. This will be an important aspect of the budget as it will be important to ensure community engagement staff is fully trained to maximize their effectiveness in ensuring there is strong communication between all stakeholders and community members.

Section 5 – Project Sustainability

The State of Maine is extremely focused on promoting renewable energy and reducing its carbon footprint in various ways from investing in and deploying offshore wind energy to electrifying ports to provide shore power. This project is a natural extension of its four-year climate action plan *Maine Won't Wait* and Maine's Climate Plan dashboard.² The purpose of this project is to prepare to bring shore power and port electrification for ZE vehicles to the four (4) ports that listed in this grant proposal. This planning project will specially analyze carbon emissions reduction plans as detailed below:

1. Analysis on carbon reduction in Maine from port electrification including shore power and electrified equipment.
2. Complete an emissions inventory for each site.
3. Quantify total energy demand for each site with existing conditions and also with electrification.

MaineDOT intends to periodically update the emissions inventories as it moves through the process of electrifying and deploying shore power. This is a critical step in understanding the reduction of emissions being achieved and the ongoing impact electrification of the ports has on the surrounding communities.

This project will analyze the permitting requirements at a high level to understand the permitting required for each port to convert to shore power as well as the permitting agencies and each agency's respective role. This project will also determine the extent of the NEPA compliance review. The analysis of the NEPA compliance review will include estimated timeframes for completion and cost associated with each individual port.

Section 6 – Workforce Development

² https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/MaineWontWait_December2020.pdf;
<https://www.maine.gov/climateplan/>

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The workforce will not be directly impacted by the planning activities detailed in this grant proposal but part of the planning activities will be to conduct a detailed job and skills based needs assessment to identify potential workforce gaps for future port activities to reduce emissions, identifying partners necessary for workforce development activities at the port. Finally, the planning activities will analyze how implementing recommendations from the planning activities could impact the current workforce and developing strategies and protections for mitigating harmful impacts.

Equitable Workforce Development Pathways as Part of the Project

The Maine Port Electrification Clean Energy Planning Project will focus on creating a clear plan to ensure equitable workforce development. This plan will include an assessment of the viability of and an implementation plan to institute paid internships, apprenticeship programs, and recruitment at community colleges, community organizations, and minority serving institutions to populate the workforce in the most equitable manner.

Section 7 – Budget

The following is the budget for the planning project. Per the NOFO there is no cost breakdown for the contractor personnel. The budget reflects the percent of Maine state employee time dedicated to the project as well. This cost is not included in the grant request and is indicated in red.

Budget Detail

a. - Budget Detail		
Line Item and Itemized Cost	EPA Funding - Year 1	EPA Funding - Year 2
Personnel - Costs not reimbursed by grant funding		
MPA Executive Director - 10% time	\$6,000.00	\$6,000.00
CruiseMaine Executive Director - 10% time	\$6,000.00	\$6,000.00
MaineDOT Director of Ports and Marine - 5% time	\$3,000.00	\$3,000.00
Total Personnel	\$15,000.00	\$15,000.00
Finge Benefits		
Total Finge Benefits	-	-
Travel		
Mileage, Lodging, Tolls for Project Duration	\$5,000.00	\$5,000.00
Total Travel	\$5,000.00	\$5,000.00
Equipment		
Total Equipment	-	-
Supplies		
Outreach Materials and Supplies	\$5,000.00	\$5,000.00

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Total Supplies	\$5,000.00	\$5,000.00
Contractual - Maine Ports Electrification Planning Study		
Task		
1. Emissions Inventory	\$75,000.00	\$50,000.00
2. Feasibility Study	\$100,000.00	-
3. Grid Upgrade Investigation	\$150,000.00	-
4. ROM Cost Estimates for Infrastructure	\$40,000.00	\$100,000.00
5. Permitting High Level Investigation	\$75,000.00	-
6. Implementation Strategy	\$35,000.00	\$50,000.00
7. Carbon Reduction Analysis for Ports	\$45,000.00	\$45,000.00
8. Community Engagement	\$45,000.00	\$60,000.00
Total Contractual	\$565,000.00	\$305,000.00
Construction		
Total Construction	-	-
Other		
Community Engagement/Workforce Support Analysis	\$10,000.00	\$10,000.00
Total Other	\$10,000.00	\$10,000.00
Indirect Charges		
Overhead (10%)		\$90,000.00
Total Indirect	-	\$90,000.00
Project Cost	\$600,000.00	\$430,000.00
Total Funding Request	\$1,000,000.00	
Total Project Cost	\$1,030,000.00	
Total Funding from State to Project Cost	\$30,000.00	

b. Expenditure of Awarded Funds

Upon receipt of grant funding, MaineDOT, the MPA, and CruiseMaine will solicit a Request for Proposals to select a qualified consultant to contract with to complete the scope of work. MaineDOT anticipates the

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work to take up to two years to complete, primarily because the work is in multiple locations throughout the state and includes investigations into upgrading the grip, shore power connections, and EV charging infrastructure. Throughout the performance period MaineDOT, MPA, and CruiseMaine will provide staff to ensure the delivery of the study, with the MPA being the primary technical lead and responsible for managing the contracted consultants. The consultant contract will be including a lump sum price for the scope elements, with the budget detail included representing cost estimates for similar projects using fair and reasonable rates. Most work will occur on the first year of the project. Tasks 1, 2, 3, 5 can begin immediately following contract award, and Tasks 4, 6, 7, and 8 will start in year 1 and finish in year 2.

There are no personnel costs associated with the project. The personnel costs in the budget detail table are representative of the state's contribution towards the project by providing staff time to complete the work and manage the consultant team and community engagement plan. Personnel costs for consultant staff are included in the contractual costs.

There are no Fringe Benefits associated with the project.

Travel is associated with mileage (federal rate) for the consultant staff to travel to and from site visits, lodging costs for overnight stays and tolls.

There are no equipment costs for the project.

Supplies cost represent materials and coordination for the community engagement plan. This includes meetings with stakeholders in the community at each port involved in the study. Cost of supplies includes handouts, visual aids, surveys, and other appropriate supplies.

The contractual costs represent each task of the *Maine Port Electrification Clean Energy Planning Project*. There are eight total tasks to complete in the study, and a final report will be issued at the end of the study which will include a website where the information will be available to the public online. Since the tasks will be completed for each port listed in the study, amount of effort spent for each port will be indicative on available infrastructure, work to date, and demand. The consultant will be selected via a competitive procurement process following the laws and regulations of the State of Maine and the EPA.

It is anticipated that the work effort will be broken down as follows:

Portland – 45 percent
Searsport – 30 percent
Eastport – 15 percent
Rockland – 10 percent

There are no construction costs for the project.

Other costs are representative of any additional costs associated with the management and completion of the community engagement plan including but not limited to meeting venues, and web hosting.

Section 8 – Attachments

Appendix A_Statutory Partnership Agreement

Appendix B_Staff Resumes